Verizon Virginia Inc. and Verizon South Inc.
Responses to
Staff of the State Corporation Commission
HJR 153 Feasibility Study
Generic Questions

1 **Please identify the major issues/questions that should be addressed by the HJR 153 feasibility study.**

RESPONSE:

The major and overriding issue is the cost of undergrounding. Any calculation of the cost has to include not only the initial cost of relocating aerial facilities to underground, but also the ongoing increased costs of maintenance of those underground facilities and the increased cost of placing all future facilities that would have been located above-ground except for an undergrounding requirement.

These costs can be broken down in outline form as follows:

Placement Cost Issues:

1. Trenching[1] costs along public and private property.
   a. Cost to restore roadways, driveways, sidewalks, landscaping, etc.
   b. Cost to provide traffic control.
   c. Permitting costs.
   d. Survey / safe digging costs.
   e. Cost of additional rights-of-way. Existing public and private rights-of-way may be limited to aerial use or may require expansion to accommodate all of the aerial facilities underground.
   f. Material cost for conduit / manhole construction as well as the duplicate facilities to be placed.
   g. Underground manhole cable systems require a parallel cable pressurization system to keep moisture out of the cable pairs.
   h. Central office compressors / air dryers needed to provide "dry" air to pressurization systems. Pipe and manifolds to be installed along new manhole routes. AC power / Inverters/ battery back up required.

2. Labor and expense cost to replace/remove all aerial plant.
   a. Utilities (all resident on existing poles) would be required to hire and contract hundreds of additional engineers, planners, drafters, lineman, splicers, installers, etc. at a tremendous and short and long-term cost to the business.
   b. Cables, drop service wires, cross-connect boxes, repeaters, poles, anchors would all be replaced.
   c. Backyard configurations would need to be brought to the street side to accommodate trenching equipment. This would result in a need to

[1] Underground plant can either be directly buried or trenched, or placed in conduit and manhole systems.

establish new entrance (buried) feeds to homes and businesses currently served from backyard type construction.

d. Coordination and direct expenses incurred to arrange for and transfer everything from a typical POTS line to highly sensitive data lines serving governments and industry.
    i. Typically, two networks – old and new – must be maintained while these efforts take place.
    ii. Experience has shown that some sensitive circuits can take up to a year to transfer due to the needs and concerns of our customers.
    iii. Many circuits would require multiple "touches" as the build-out of the underground network progresses. Each touch introduces the possibility of disrupting service.

3. Removal and disposal costs
    a. Removal and retirement of existing aerial cables and poles.
        i. Poles are considered hazardous waste. Disposal costs will be significant.
        ii. Lead cable is also considered hazardous waste and premium removal costs would apply.
4. Shared structure is not feasible and should not be considered a cost-saving option in most situations.
    a. Power, CATV and telephone structures have vastly differing designs. Manhole placement and the optimal placement of main network structures e.g. cross-connect boxes, transformers, etc. vary widely.
    b. Power and Communications cables cannot share the same manhole and conduit systems. EMI (Electromagnetic Interference) disrupts communications. Verizon technicians are not trained or qualified to work in close proximity or handle high voltage cables.
    c. Shared trenching is utilized in some residential subdivisions when cost effective. Even then, utilities do not share 100% of the trenching. Conflict between utilities' schedule can create prolonged open trenches / safety issues.
    d. Communications and power **can and do share aerial** facilities – lowering overall network costs for all utilities.

5. A great deal of infrastructure is already below ground – existing water, steam, sewer, gas, power and communications facilities may need to be re-routed or sub-optimal routing of new facilities will be required to get around existing plant. This will increase the cost of implementation considerably as well as increasing the potential for damage to existing underground facilities.

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Maintenance Cost Issues:

Ease of accessing plant for rearrangements and maintenance will be greatly reduced if plant is relocated underground.

a. Verizon plant is continuously rearranged to provide or restore service. Accessing plant on a pole does not require as rigorous setup and breakdown procedures.
    i. Manholes must be pumped, purged and vented.
    ii. Traffic control and safety concerns are greater with underground work versus aerial work.
    iii. Manholes located in streets where steam pipes are located are at risk for cable failure due to steam created by water seepage hitting steam pipes and filtering into the manhole.

2. Delays in service activation and restoration will occur if all plant is relocated underground.
    a. Limited access to most of the network (aerial cables can be more readily accessed for repair or rearrangement).
    b. Underground plant requires excavation, permits, road opening, manhole access, etc.
3. Potential for cable hits increased
    a. Out-of-sight plant is highly susceptible to damage and breakage caused by excavating equipment.
4. Parallel efforts by all utilities can cause prolonged schedules by all to access old plant on poles. This means that removing aerial plant must be done in a specific order. Everyone cannot be there at once, although all parties must be involved in the management of the project. The normal order is from top to bottom on the pole. So typically power is first, followed by cable, CLECs, and then Verizon. Carefully coordinated efforts are needed to keep a large-scale project like this on schedule. The potential for delay is very high.

Additional Issues:

1. Customer frustration –
    a. Utilities digging up roads, driveways, landscaping.
    b. Utilities tying up traffic, closing roads, etc.
2. If undergrounding were to be financed with surcharges or taxes on wireline services, which it should not, customers will simply hasten their migration to wireless services and to any wireline-based service that is not subject to the surcharge, e.g. VoIP (voice over broadband).
3. Utilities will be in constant legal battles with customers, landowners, and the state and local governments that control the public rights-of-way.
    a. Disagreements over the quality of restoration.

b. Disagreements over the value of easements and rights-of-way usage.
c. Eminent domain costs and issues.

4. Damage to roads, curbs, and similar infrastructure that will have to be cut and repaired multiple times both for the initial undergrounding as well as for ongoing maintenance.

2. Please describe the potential benefits to the public and utility companies associated with the undergrounding of overhead distribution lines.

RESPONSE:

Aesthetic Benefits

1. Poles and aerial plant are not visually pleasing. This is extremely difficult to quantify.

Cost Benefits

1. Tree trimming costs, mainly for power companies, are reduced significantly. This is a minor expense for the business as a whole.

Major Service Outages Reduced

1. Ice storms and hurricanes have a lesser impact on underground plant. Telephone plant is impacted by these storms to a much lesser degree than power. The advent of nearly ubiquitous cell phone usage has significantly reduced the impact of such events on telephone customers.
2. Outages due to vehicles knocking down poles eliminated.

3 **Please describe the potential negative impacts on the public and utility companies associated with the undergrounding of overhead distribution lines.**

RESPONSE:

The negative impacts are described to a great degree in the response to the first question. These are broken down into several main categories:

Extremely significant financial burden on utilities and the public.

2. To the extent any of the costs, either initial or ongoing, are passed on to wireline customers though surcharges or tax increases on wireline services, or increases in the price of wireline services, customers will be incented to hasten the move to wireless services or any wireline service not subject to the surcharge, tax, or price increase.
3. Extreme disruption to existing infrastructure – roads shut down and dug up, damage to existing underground infrastructure, etc. and demand for additional public rights-of-way to accommodate the additional underground facilities.
4. Impacts on private landowners – driveways and landscaping damaged and additional property taken, possibly by eminent domain.
5. Service quality impacts – underground plant cannot be repaired or rearranged as easily, as quickly, or as cost-effectively as aerial plant.
6. Service outages – underground plant is more susceptible to damage from excavation and cable hits.
7. Workforce used to replicate aerial plant to underground plant dilutes the workforce used to install new services and expedite service repairs.

4. Please describe in detail the potential obstacles associated with the implementation of a program to relocate overhead distribution lines to underground (for example, statutory, regulatory, technological, economic, safety, and physical obstacles).

RESPONSE:

Again, obstacles associated with implementing a program to relocate overhead plant below ground are described to a great degree in the response to the first question.

Summarizing these once more:

1. Cost and financial obstacles pose an extreme financial burden on utilities and whatever public body funds the undergrounding. Passing these costs on to the public in the form of surcharges or taxes may pose a financial burden on many consumers. Many consumers will also opt out of any wireline services that are subject to taxes, surcharges, or price increases in favor of wireless services or wireline services not subject to the tax, surcharge, or price increase. This will, of course, simply exacerbate the significant burdens on the utilities subject to an undergrounding requirement.
2. Physical obstacles.
    a. A great deal of infrastructure is already underground. Existing water, steam, sewer, gas, power, and communications facilities may need to be re-routed or sub-optimal routing of new facilities will be required to get around existing plant. In either case, this drives up cost and creates the potential of significant damage to the existing underground infrastructure.
    b. Existing physical obstacles, natural and man-made, such as rock formations, streams, bridges, railroad crossings, buildings, tunnels, wetlands, landmarks, large trees, etc. These obstacles must all be considered and, while most can be overcome, all will drive up costs significantly.
3. Safety and labor issues present obstacles.
    a. Communication cabling cannot be collocated underground with power equipment.
        i. EMI from power lines interferes and disrupts communications.
        ii. The communications labor force is not trained to work in close proximity to power. Therefore, communication utilities cannot share structure for conduit systems with power utilities.
        iii. Communications and power can and do share aerial facilities – lowering overall network costs for all utilities.

4. Transfer of existing services
    a. The ability to transfer critical circuits – data circuits, financial institutions, air traffic control circuits, security circuits, government circuits, fire, police, etc. – must be coordinated closely. Delays are standard. Much of the work can only take place at "off hours" such as early morning hours or Sundays. Delays from customer security and downtime concerns can cause delays that can run from days to months to even a year.

5. Please describe the process for identifying and securing right-of-way easements for the relocation of existing overhead distribution lines to underground. What property rights issues would be raised as a result?

RESPONSE:

Acquiring rights-of-way in private property – Steps and issues

Determine if an existing ROW can be used, or if a new one must be acquired.

The remaining steps apply for acquiring a new ROW.

2. Visit site and complete preliminary site selection.

3. Perform a complete environmental assessment.

Federal and Local environmental rules and regulations dictate the requirements Verizon must follow. Environmental policies and procedures must be followed to identify and avoid hazards of environmental contamination, as well as wetlands disturbance. Local engineering management must select a representative to conduct an environmental site assessment. This process includes but is not limited to:

Completing the Environmental Checklist (to identify visual characteristics of potential environmental problems).
Conducting records search of prior use of land, to include a 50-year title search for high-risk areas.
Search site in EPA's Superfund listing of contaminated sites.
Negotiating and obtaining liability indemnity from property owners of high-risk sites.
Contracting external certified Environmental Site Inspector to conduct inspections of high-risk sites.
Wetlands compliance includes searching wetlands mappings and federal, state, and local agencies to ensure that facilities are not placed in areas of wetlands concern. Wetlands violations result in very costly legal and remediation expenses.

4. Determine what approvals from other jurisdictions are required.

Other entities that might have interest and legal rights over the use of the land add complexity to the ROW acquisition process. Approvals may need to be negotiated and obtained from these entities. Examples of such entities include: VDOT or

local governments with jurisdiction over roadways, federal, state, and local departments of parks and recreation, historical and scenic organizations, environmental conservation groups, homeowners associations, localities, civic groups, railroads. Call Miss Utility.

5. Determine adequate consideration to offer and negotiate with property owners concerning restoration and placement conditions.

   The amount of consideration we pay for our ROWs is based on many factors. Fair market value of similar real estate and land is the main factor. In many cases when the owner is not interested in the disruption of underground facility construction or when he or she perceives that the utility has limited alternative routes, he or she may demand very high monetary compensation. Difficulty in acquiring key ROWs can result in significant delays. Negotiating compensation and other conditions such as routing, future relocation, and restoration can be very time consuming. Eminent domain is frequently not a practical alternative due to the very high costs involved and the time delays inherent in the process.

6. Conduct a title search.

   A title search is needed to verify ownership and potential encumbrances, liens, and general problems with the title of the property. The accuracy of the title search prior to obtaining ROW is of critical importance. This is also a costly process.

7. Conduct a professional site survey, if applicable.

   A site survey is required for accurate and official graphical and legal description of the land, and to ensure facilities are placed within the ROW obtained. Due to the importance of an accurate survey, and given the complexity of the process of a conducting a site survey, in most instances we outsource it to professional surveying companies. This can be also a costly process.

8. Remove encumbrances, mortgages liens, etc., if applicable.

   This can at times be a time consuming process and, in some cases, removal of encumbrances has to be tied to the compensation to the owner.

9. Present and seek approval from boards (Planning, Zoning, quasi public entities, or other agencies). This is a very site-specific issue. However, if required, it is a time

consuming and very expensive process. All required approvals must be obtained prior to the start of construction.

10. Record documents at the Courthouse.

    All easements and rights-of-way obtained on private property must be recorded at the local courthouse so that public notice of their existence and enforcement can be achieved. This process involves the payment of recordation fees and, in some jurisdictions, transfer taxes.

1 Restorations.

The restoration once construction is completed can be a large cost factor. There are frequently significant costs associated with backfilling trenches, restoring street pavement, sidewalks, concrete curbs, driveways, lawns and landscaping and fences. Depending on soil composition, certain areas require more expensive restoration materials and equipment.

Acquiring permissions in public rights-of-way – Steps and issues

In addition to steps 1,2,3,4,9 & 11 from the previous section (private property), the following additional steps and issues apply for public way:

- Determine and verify jurisdiction (local, state, or federal).
- Determine if joint application is needed for poles and buried facilities.
- Meet with representative from jurisdiction with authority to go over scope of work and ROW requirements.
- Review Miss Utility requirements.
- Determine if a survey and/or traffic management plan is required. If required, arrange for and submit a professional survey and a traffic management plan.
- Determine and complete all required paperwork. Have joint applicants signed.
- Determine and pay applicable fees.
- Convey special restrictions to construction and engineering personnel.
- Provide copy of all permits to construction and engineering so they can be displayed at the work site if required.
- Follow up with government agency if review or certification is required after construction.

Rights in public way are in the form of a license or permit and, therefore, are subject to potential relocations due to road improvements or other governmental construction.

Therefore, it is not cost effective to place large and/or expensive facilities (such as loop electronics cabinets or controlled environmental vaults) in the public rights-of-way.

Railroad Issues

Another major roadblock in the process of ROW acquisition can be railroads. It is very difficult and expensive to obtain rights on railroad property due to the ever-increasing restrictions and insurance requirements imposed by them. In this case in particular, eminent domain is not a practical option.

Other non-ROW issues

Coordination of all requirements - such as timing, manpower, funding, budgeting, and minimization of service disruptions to customers - among all parties would be costly, time consuming, and labor intensive. Adequate human resources would have to be allocated by each of the utilities to manage the logistics of the conversion.

There are also wireless providers localities, and others that use utility poles for mounting antennae, streetlights, and traffic signals. They present additional logistical problems, costs, and potential service and public safety disruptions to an undergrounding project. Careful consideration of the potential negative impact on customers must be taken into consideration when developing any program designed to eliminate overhead facilities.

Seasonal Considerations

There could be limited construction time available during cold winter periods when heavy frost and freezing in the soil makes trenching and digging very difficult. This is another source of potential project delays. In addition, construction may not be permitted during certain months or weeks due to major tourist or other events.

Summary

Wholesale conversion of utility lines from aerial to underground has many right-of-way requirements and implications. Along with coordination between multiple utilities, it requires coordination between multiple public and private entities who have interests in and legal rights over the land. Many poles and aerial facilities are on private property and will be subject to right-of-way negotiations with individual and/or corporate property owners. Eminent domain is frequently not a practical alternative due to significantly increased costs and time.

In addition to for the cost of additional private rights-of-way, there will be significant costs associated with road crossings, restoration of pavement, sidewalks, lawns and

landscaping, driveways, and fences. In some cases, additional public rights-of-way may have to be acquired to accommodate the additional underground facilities. Soil conditions in certain areas could require expensive and time consuming excavation and blasting of rock.

There are also many environmental implications with placing facilities underground. Environmental policies and procedures must be followed to identify and avoid the hazards of environmental contamination as well as wetlands disturbance. If contaminated soil is disturbed, regardless of who was responsible for contaminating it, or who the property owner is, the party disturbing the soil can be held responsible for the costly and time extensive clean-up. In many instances, removal of aerial plant is more environmentally disruptive than taking no action.

While there are many general right of way issues that can be predicted, many issues may be unforeseen and would be site specific. We believe any discussion of undergrounding must also include who will be burdened with the cost. To embark on such a costly endeavor in these competitive times would place significant economic burdens on some companies and create a competitive advantage for those who do not have to bear these costs.

6. In order of importance, list the criteria that should be considered to determine whether the implementation of a program to relocate overhead distribution lines to underground is desirable.

RESPONSE: Verizon suggests the following criteria in order of importance:

Financial Impacts

a. Significant financial impact on utilities due to:
   i. Rebuilding and replacing a majority of the existing network in Virginia as well as the increased costs of future maintenance and new construction.
   ii. Loss of customers to any competitor that does not share an equal burden for undergrounding or whose customers are not subject to the same taxes, fees, and price increases as the customers of the wireline providers.
b. Significant financial impact on consumers
   i. Surcharges, taxes or other levies to pay for the costs of the undergrounding and additional public costs associated with the undergrounding.
c. Significant financial impact on state and/or local government to fund the undergrounding, provide additional public rights-of-way, and rebuild many road surfaces whose life will be significantly shortened by utility construction.

2. Service fallout
   a. Disruption from the transfer of existing services, particularly critical and sensitive circuits, from the existing network to the new network.
      i. Many circuits would require multiple "touches" as the build-out of the underground network progresses. This significantly increases the likelihood of service disruptions.
   b. Maintenance restoration of existing services will be negatively impacted from both a cost and service restoral perspective due to the diminished flexibility inherent in underground and buried plant as compared to aerial plant.
   c. Provisioning of new service often requires rearrangements. Timeliness of new service activations will be negatively impacted due to the diminished flexibility inherent in underground and buried plant as compared to aerial plant.
3. Disruptive fallout resulting from construction activities
   a. Public roadway closings due to construction and restoration of roads and other construction damage.
   b. There will be a very high risk of damage to existing underground infrastructure due to construction activity.
   c. Private property impacts
      i. Driveways, landscaping, and crops damaged during construction and removal of aerial facilities.

ii. Private property used to provide the additional rights-of-ay required for undergrounding.

7. In order of preference, describe the potential options for funding the relocation of overhead distribution lines to underground and explain the basis of your recommendation.

RESPONSE:

The only viable option would be public funding of all initial and ongoing costs though general revenue sources. Any other option will result in placing the primary owners of wireline facilities at a significant competitive disadvantage. For example, causing wireline facility owners to directly bear the initial and/or ongoing costs of undergrounding will place them at a significant competitive disadvantage to competitors who do not have to bear such costs. Moreover, taxes, surcharges, or fees on wireline customers will create the same completive disadvantages for wireline providers. Either situation will simply hasten the movement of customers to substitute services that do not bear the financial burden, directly or indirectly, of undergrounding. Examples are wireless services and any wireline-based services, such as VoIP, that might not bear the same financial burden as other wireline services.

8. Should one or more pilot programs be conducted to determine more precisely the benefits, costs and obstacles associated with the implementation of a program to relocate overhead distribution lines to underground? If pilot programs should be conducted, how could and should the pilot programs be funded?

RESPONSE:

It will not take a pilot program to determine, at least for telecommunications, that the costs of mass undergrounding far outweigh the benefits. It is far too early to rationally consider a pilot program.

9. Considering the costs, benefits and obstacles associated with the implementation of an undergrounding program, should the General Assembly require utilities to place all or a portion of existing and/or new overhead distribution lines underground? Alternatively, should such decisions be left to local government? Please explain your answer.

RESPONSE:

For all of the reason already stated, the General Assembly should not require telecommunications companies to place their existing or new facilities underground nor should it authorize local governments to do so.

10. What obstacles, if any, currently prevent a local government from enacting an ordinance establishing all or a part of the locality as an area in which: (a) existing overhead utility distribution lines must be relocated underground over some period of time; and/or (b) all new utility distribution lines must be located underground?

RESPONSE:

A local government that controls its own public rights-of-way has control, consistent with state and federal law, over the manner in which those rights-of-way are used. Local control must be exercised within the non-discriminatory and other requirements of Va. Code §§ 56-458 and 56-462. In addition, local control is constrained by the Federal Telecommunications Act of 1996, particularly in its prohibitions against creating barriers to entry and discriminating among telecommunications providers.[2]

VDOT controls the rights-of-way through all counties except Henrico and Arlington. Local governments would have limited, if any, control over telecommunications facilities in VDOT-controlled rights-of-way.

An additional obstacle faced by local governments is the Virginia Uniform State Building Code ("USBC"). The USBC "supersede[s] the building codes and regulations of the counties, municipalities and other political subdivisions and state agencies."[3] The USBC exempts "Equipment installed by a provider of publicly regulated utility service and electrical equipment used for radio, telecommunications and television transmission. The exempt publicly regulated utility services and such other's equipment shall be under their exclusive control and located on property by established rights; however, the structures, including their service equipment, housing or supporting such exempt equipment shall be subject to the USBC. The installation of such exempt equipment shall not create an unsafe condition prohibited by the USBC."[4]

[2] 47 USC § 253.
[3] USBC § 102.1.1.
[4] USBC § 101.4 (1).

11. For the specific purpose of funding the undergrounding of existing overhead utility distribution lines, what obstacles, if any, currently prevent a local government from levying a special tax on the residents and businesses of an area within the locality in which the local government has enacted an ordinance requiring the undergrounding of utility distribution lines? Would such a special tax assessment require specific new authorization from the General Assembly?

RESPONSE:

Any special tax levied by a local government has to be authorized by the General Assembly. The General Assembly should not provide such an authorization for the reasons already stated.